

# C. U. SHAH UNIVERSITY

## Summer Examination-2020

Subject Name: Organic Chemistry-III

Subject Code: 4SC05OCH1

Branch: B.Sc. (Chemistry)

Semester : 5

Date : 28/02/2020

Time : 10:30 To 01:30

Marks : 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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- Q-1 Attempt the following questions: (14)**
- a) What do you mean by reaction mechanism? (1)
  - b) What is homolytic cleavage of bond? (1)
  - c) What do you mean by epimers? (1)
  - d) Define: Electron withdrawing group (1)
  - e) What do you mean by ketonic hydrolysis? (1)
  - f) Write the reagent used in M. P. V. reaction. (1)
  - g) Draw the structure of epimer of D-glucose. (1)
  - h) Define: Ylides (1)
  - i) What do you mean by triplet state of free radical? (1)
  - j) Give only reaction of Ullmann rearrangement. (1)
  - k) Write the stability order of  $1^{\circ}$ ,  $2^{\circ}$ ,  $3^{\circ}$  carbocations. (1)
  - l) Write the examples of neutral electrophile. (1)
  - m) Give any two example of electron withdrawing group. (1)
  - n) What do you mean by carbohydrate? (1)

**Attempt any four questions from Q-2 to Q-8**

- Q-2 Attempt all questions (14)**
- a) Write generation of carbocation and explain its stability. (7)
  - b) Discuss generation and stability of free radical. (7)
- Q-3 Attempt all questions (14)**
- a) Discuss Pinacol-Pinacolone rearrangement with mechanism and its application (7)
  - b) Explain Knorr-pyrole reaction with mechanism and its application (7)
- Q-4 Attempt all questions (14)**
- a) What are Nitrene? How they are generated? Explain their fate. (7)
  - b) Discuss fates of carbanions (4)



- c) Write generation of benzyne (3)
- Q-5 Attempt all questions (14)**
- a) Explain conversion of aldose to ketose having two more carbon atoms with proper example (6)
- b) Explain determination of ring size of glucose by periodic oxidation method (4)
- c) Introduce monosaccharides, Disaccharides and oligo saccharides with an example (4)
- Q-6 Attempt all questions (14)**
- a) Write the synthetic application of  $\alpha$ -dicarbonyl compounds (5)
- b) Write the synthesis of Ethyl acetoacetate (EAA) and Diethylmalonate Acidic (5)
- c) Write the applications of carbenes (4)
- Q-7 Attempt all questions (14)**
- a) Discuss Hantzsch-pyridine synthesis with mechanism and its application. (7)
- b) Discuss Skraup synthesis with mechanism and its applications (7)
- Q-8 Attempt all questions (14)**
- a) Discuss Kiliani reaction and Swoden nitromethane reaction. (7)
- b) Write a note on configuration of monosaccharides. (4)
- c) Write a brief note on mutarotation. (3)

